IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant	Hans-Wulf Pfeiffer
Application No. 09/929,267	Filing Date: August 14, 2001
Title of Application:	Method Of Increasing The Boundary Layer Strength On Surfaces Of Workpieces Made Of Brittle Hard Materials
Confirmation No. 9985	Art Unit: 1731
Examiner	John Hoffman

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Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Reply Brief Under 37 CFR §41.41

Dear Sir:

Having received the Examiner's Answer, Appellant submits this Reply Brief for the above-captioned application pursuant to 37 C.F.R. §41.41 as follows.

Most of the arguments presented in the Examiner's Answer were presented during prosecution, and thus, have already been dealt with in Appellant's Appeal Brief. Appellant submits this Reply to briefly elaborate on issues raised in the Examiner's Answer.

35 U.S.C. § 112, first paragraph rejection

Factor A

In response to the Appellant's arguments the Examiner has submitted that "Examiner has noted Kingery (pages 3, 573-575) has been cited as identifying what one of ordinary skill considers to be covered by the term "ceramic". And weighing the objective evidence of Kingery against the March 2004 Pfeiffer declaration, one would probably find that Kingery outweighs the evidence that comes from the inventor who may have an interest in the weighing process." (Examiner's Answer, p. 12) That the Examiner is suggesting that the Inventor (one of skill in the art) is at the very least is being disingenuous should not have been a factor considered by the Examiner.

Appellant notes that the cited prior art (U.S. Patent No. 3,573,023 to Thomas et al.) is consistent with the definition given by Appellant in the March 2004 Pfeiffer declaration.

Factor B

The Examiner has stated that the "nature of the invention does not appear to lend itself as evidence to show the invention is not enabled." (Examiner's Answer, p. 5) As the sentence reads it appears the Examiner is saying this factor supports the Appellant's argument. However, if that was not intended by the Examiner, Appellant notes that the Examiner has provided no reasoning whatsoever as to this factor.

Factor C

Appellant agrees with the Examiner that the prior art does not disclose or teach the inventive method. However, Appellant disagrees with the Examiner's statement that Appellant's "assertion that it can be done (with no evidence to support such) is not very persuasive." (Examiner's Answer, p. 6) The Examiner also states that "there is a rea-

sonable burden upon applicant to demonstrate that it can be done." (*Id.*) As stated in Appellant's Appeal Brief, specifics are presented in the specification relating to the results from experimentation showing the claimed method does work. (See, pars. 25-31) Accordingly, it appears that the Examiner is either ignoring the test results presented in the written specification or calling into question the veracity of the information presented by the inventor. Neither of these reasons provides a basis for reading this factor against Appellant.

Appellant has provided evidence to support the claimed invention, which the Examiner has not refuted, but simply ignored.

Factor D

Appellant notes that the Examiner has made the statement that the "level of one of ordinary skill does not appear to lend itself as evidence to show the invention is not enabled." (Examiner's Answer, p. 6) Again, this statement as written supports the Appellant's argument.

Factor F

The Examiner has submitted that the "Examiner found that the amount of direction is low" and that "[s]ome "good" guidance does not mean that there is a large amount of guidance." (Examiner's Answer, p. 13)

As the Examiner noted, "Factor F is directed to the Amount of guidance" (Id.), which the Federal Circuit has discussed extensively. The enablement requirement of 35 U.S.C. § 112 is concerned with whether the specification adequately describes how to make and use the invention. The analysis of whether a particular claim is supported by the disclosure in an application requires a determination of whether that disclosure, when filed, contained sufficient information regarding the subject matter of the claims so

as to enable one skilled in the pertinent art to make and use the claimed invention. See MPEP § 2164.01.

As a preliminary matter, Applicant respectfully notes that the enablement requirement applies to those skilled in the art, not to an average person reading the patent. *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 1556, 220 U.S.P.Q. 303, 315 (Fed. Cir. 1983) ("Patents, however, are written to enable those skilled in the art to practice the invention, not the public."). Therefore, in order for a patent to suffer from lack of enablement, it must really be the case that a person who is actually skilled in the relevant art could truly not practice the claimed invention without conducting undue experimentation.

Starting from the perspective of those skilled in the art, a lack of enablement occurs when the disclosure leaves such skilled persons in a position where they still must perform extensive experimentation in order to practice the invention—in other words, they are required to engage, not merely in "some" experimentation, but in "undue" experimentation. *In re Wands*, 858 F.2d 731, 737, 8 U.S.P.Q.2d 1400, 1404 (Fed. Cir. 1988) ("Enablement is not precluded by the necessity for some experimentation… the key word is 'undue,' not 'experimentation.'"); *Hybritech Inc. v. Monoclonal Antibodies, Inc.*, 802 F.2d 1367, 1384, 231 U.S.P.Q. 81, 94 (Fed. Cir. 1986) (enablement "is not precluded even if some experimentation is necessary, although the amount of experimentation needed must not be unduly extensive.").

Therefore, because "[t]he question is whether the disclosure is sufficient to enable those skilled in the art to practice the claimed invention… the specification need not disclose what is well known in the art." *Lindemann Maschinenfabrik GMBH v. American Hoist and Derrick Co.*, 730 F.2d 1452, 1463, 221 USPQ 481, 489 (Fed. Cir. 1984). *See also In re Buchner*, 929 F.2d 660, 661, 18 USPQ2d 1331, 1332 (Fed. Cir. 1991); *United States v. Telectronics, Inc.*, 857 F.2d 778, 785, 8 USPQ2d 1217, 1223 (Fed. Cir. 1988) ("The test of enablement is whether one reasonably skilled in the art

could make or use the invention from the disclosures in the patent coupled with information known in the art without undue experimentation."). In other words, the specification need not lay out every step necessary to practice the invention, but rather, must point those skilled in the art in the right direction so that they can, using the existing knowledge in the art, practice the invention. *In re Wands*, 858 F.2d at 737 ("The determination of what constitutes undue experimentation in a given case requires the application of a standard of reasonableness, having due regard for the nature of the invention and the state of the art... The test is not merely quantitative, since a considerable amount of experimentation is permissible, if it is merely routine, or if the specification in question provides a reasonable amount of guidance with respect to the direction in which the experimentation should proceed."). Therefore, "[a] patent need not teach, and preferably omits, what is well known in the art." *Hybritech*, 802 F.2d at 1384.

Here, Applicants have disclosed a novel and nonobvious method of producing increasing the boundary layer strength of a ceramic workpiece by providing a tool as described in the specification and contacting the ceramic workpiece with the tool within a predetermined surface area as described in the specification. However, the precise method used for contacting (e.g., "shot-peening" (pars. 10, 13, 15, 17, 25, 30 & 33); "static ball thrust test" (par. 31); "dynamic ball thrust test" (par. 32); "and as an alternative of shot-peening also hammers, nails and rollers should be mentioned." (par. 30)) are not discussed at length as these are well-known methods used by those of skill in the art. (see e.g., U.S. Patent No. 3,573,023 (Thomas) cited by Examiner at Col. 2, lns. 12-24; see also, U.S. Patent No. 6,153,023 (Rokutanda) cited by Examiner and entitled "Hardened metal product produced by shot peening with shot having high hardness", which extensively discusses the shot peening method.) Accordingly, Applicant respectfully notes that, pursuant to the law discussed above, this particular limitation need not be explicitly described in the specification, as those that are skilled in the art would not truly need to engage in undue experimentation in order to practice the claimed inven-

tion. Applicant again respectfully notes that the omission of explanations of known elements not only does not present an enablement issue, but it is, in fact, preferred.

Factor G

The Examiner has stated that "[t]here is no working example." (Examiner's Answer, p. 7) Appellant directs the Examiner's attention to Paragraphs 25-31, which disclose test results and tool specifics.

Factor H

The Examiner has stated that the "quantity of experimentation is unknown. The prior art indicates the invention would not work." (Examiner's Answer, p. 7) Appellant submits that Appellant has submitted specific details relating to the results of experiments conducted by the inventor according to the claimed method to achieve the stated results as discussed in the written specification. (Pars. 25-31) The Examiner has not presented evidence refuting the evidence submitted by the Appellant, but merely pointed to prior art references that have noted that the methods described in those references cannot achieve the results according to the claimed method. The methods described in the prior art references differ significantly from the claimed method. Appellant further submits that undue experimentation would not be required by one of ordinary skill in the art as per the discussion relating to Factor F above.

The Examiner has still further stated that it "is noted that Appellant has contested the individual factors, but has not disputed whether the ultimate conclusion that the factors (A-H), references of record and the specification, when taken together demonstrate that the first paragraph of 35 USC 112 is complied with." (Examiner's Answer, p. 14) Appellant is a bit confused by this statement seeing as Appellant has at numerous occasions in it's Appeal Brief stated that they disagree with the Examiner's 112 rejection, provided extensive examples and case law as to why they disagree and specifically state that Appellant believes the invention is enabled. If the Examiner is looking for a

specifically constructed statement as per the above, the Appellant submits that the MPEP 2164.01(a) factors (A-H), references of record and the specification, when taken together do demonstrate that 35 U.S.C. §112, first paragraph is complied with.

35 U.S.C. § 103 rejection

A rationale to support a conclusion that a claim would have been obvious is that all the claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and the combination would have yielded nothing more than predictable results to one of ordinary skill in the art. *KSR International Co. v. Teleflex Inc.*, 550 U.S. ___, ___, 82 USPQ2d 1385, 1395 (2007); *Sakraida v. AG Pro, Inc.*, 425 U.S. 273, 282 (1976). Appellant notes that the Examiner has stated "if the prior art says something cannot be achieved and many people have tried to achieve it, it is a strong suggestion that it maybe impossible." (Examiner's Answer, p. 17) Accordingly, on the one hand, the Examiner has argued that the prior art states that the presently claimed method cannot be achieved (a clear teach away argument) on the other hand, the presently claimed invention is "obvious" in view of the cited art that the Examiner's submits teaches it is "impossible." Appellant respectfully submits that the Examiner cannot have it both ways. If the prior art teaches it is "impossible", then that same prior art can't also teach that it is "obvious."

Appellant has invented a new and novel method for increasing the boundary layer strength of a ceramic workpiece. While the Examiner has gone on at length that the prior art teaches that the method is "impossible", the Examiner's reasoning is fundamentally flawed. It is true that the cited prior art teaches that a ceramic (not cermets or near ceramics) workpiece must be elevated in temperature prior to hardening, however, the cited prior art also fails to disclose or teach the present method that allows the workpiece to be worked on without elevating the temperature. It is the new and novel method disclosed and claimed in the present application and facilitates this. Appellant

agrees that the cited art cannot accomplish what the present method accomplishes, which is why the presently pending claims are not "obvious" in view of the cited references.

Response to Examiner's Arguments

The Examiner has submitted that the "[i]t is argued that Thomas fails to teach impacting a true ceramic without first elevating the temperature of the workpiece" but that "[t]his is not very relevant because the claims are not limited to 'true ceramics'." (Examiner's Answer, p. 14) Appellant directs the Examiner to Appellant's declaration defining the term "ceramics."

The Examiner has further stated that it is argued that Thomas teaches aluminum oxide requires elevated temperatures but that this "is not very relevant" because the "rejection is not based on aluminum oxide" and that "Thomas teaches other ceramics can be treated at room temperature." (*Id.*) Appellant submits that the specific example of aluminum oxide taught in Thomas was cited by Appellant to teach that "ceramics" as defined by Appellant must be elevated in temperature prior to shot peening. When considering a reference, the reference must be considered for its teachings as a whole and it is inappropriate to pick and choose various elements from the references without regard to what the references teach as a whole. *In re Arkley*, 455 F.2d 586, 587-88, 172 U.S.P.Q. 524, 526 (C.C.P.A. 1972).

The Examiner has still further stated that it is "argued that Thomas teaches that "true ceramics" require elevated temperatures" but that "Appellant has never pointed out where this supposed teaching is in Thomas, nor can Examiner find such." (*Id.*) Again, the Examiner is ignoring Appellant's definition of "ceramics" as Appellant cited Thomas at col. 3, lines 58-65 as an example of a true ceramic as compared to cermets which do not require elevated temperatures. The Examiner appears to be suggesting that while Thomas may list some examples of materials, those examples cannot be used to de-

scribe how similar materials would react but that an exhaustive listing of every material should be provided. Appellant notes that Thomas differentiates between various types of materials and groups them accordingly providing examples of materials that fall into the various groups. When reading Thomas as a whole, it is clear that ceramic materials require elevated temperatures while cermets do not.

The Examiner next argues that "on face value, the term "near ceramic" has the word ceramic" in it – thus there is a presumption that it is ceramic" and that "Appellant has not pointed out why Kingery" is "incorrect in indicating that cermets are ceramics." (Examiner's Answer, p. 15) Appellant notes that the very references cited by the Examiner make a distinction between "near ceramics and the true ceramics" and that that Appellants definition is consistent with the prior art cited by the Examiner against the pending claims. (see Thomas at col. 3, lines 52-55) Further, the Examiner states that the "Pfieffer declaration does not appear to be very relevant" and somehow uses the fact that that the "declarant is/was a citizen of Germany" to discredit the declaration. (Examiner's Answer, p. 15) Appellant submits that it is a clear error of law to consider the nationality of the declarant when determining the veracity or relevance of the declaration. The test is what one of skill in the art understands, not what a citizen of a particular country understands. The inventor of the pending application is not just one of ordinary skill in the art, but one of extraordinary skill in the art and any attacks on the declarant based on his citizenship should be utterly dismissed.

The Examiner then argues that Brookes only teaches that the temperature "usually" has to be in the range of 420°C to 700°C but that "one would understand the temperatures are not necessarily in that range" and that "[o]ne of ordinary skill having the teachings of both Brookes and Thomas would understand that there are some ceramics (e.g. tungsten carbide) need not have the control be at an elevated temperature." (Examiner's Answer, pp. 15-16) The Examiner here seemed to be implying that just because the usual temperature range is 420°C to 700°C, that a temperature of about 25°C (e.g. room temperature) is not excluded. Neither Brookes nor Thomas teach this. The

example that the Examiner points to "tugsten carbide" falls outside of Appellants definition of a ceramic but is a cermet.

Finally, the Examiner submits that "if the prior art says something cannot be achieved and many people have tried to achieve it, it is a strong suggestion that it maybe impossible" and that when "the prior art suggests it cannot be done, there is a reasonable burden upon applicant to demonstrate that it can be done. Applicant assertion that it can be done (with no evidence to support such) is insufficient." (Examiner's Answer, p. 17)

It should be noted that the prior art teaches that increasing a boundary layer strength of a ceramic workpiece cannot be done according to the methods disclosed in the prior art references or known to the inventors of those patents. The inventors of the present application define a specific process that is not disclosed, taught or suggested in any of the cited prior art references. This method allows for the unexpected result, namely the increasing a boundary layer strength of a ceramic workpiece by contacting the ceramic workpiece with the tool without elevating the temperature of the workpiece. Specific data, specifications and methods are described in the written specification describing the claimed method. Therefore, the Examiners citation of the prior art references that the result as described in the presently pending claims cannot be achieved based on prior art methods is non sequitur.

The Examiner again returns to the 112 argument that that "amount of direction provided was "low" because it does not indicate/suggest what ceramics might work." (Examiner's Answer, p. 17) As Appellant has previously submitted, the test is whether one of skill in the art, not an average person reading the patent, could truly not practice the claimed invention without conducting undue experimentation. *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 1556, 220 U.S.P.Q. 303, 315 (Fed. Cir. 1983) ("Patents, however, are written to enable those skilled in the art to practice the invention, not the public."). The Examiner appears to be suggesting that those skilled in the

art would not understand (and therefore could not practice the invention as described in the written specification) the term "ceramic" as used in the present application as opposed to near ceramic or cermet. However, the inventor's definition refutes this as do the teachings of the prior art currently cited against the pending claims.

Respectfully submitted,

March 7, 2008

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